



# COMMONWEALTH OF VIRGINIA

## *Department of Mines, Minerals and Energy*

Division of Mines  
P. O. Box 900  
Big Stone Gap, VA 24219-0900  
(276) 523-8100  
Frank A. Linkous, Chief

### **MEMORANDUM DM 05-09**

TO: Virginia Underground Coal Mine Operators

FROM: Frank A. Linkous  
Frank A. Linkous, Chief  
Division of Mines

SUBJECT: ***Ground Control Plans***

DATE: December 8, 2005

On February 10, 2005, Governor Mark R. Warner signed into law House Bill 2573, which includes significant changes to Section 45.1-161.287 of the Virginia Mine Safety Act (The Act). The Chief of the Department of Mines, Minerals and Energy's Division of Mines must now approve ground control plans for all mines, including underground coal mines. The plan must ensure the safety of persons in residences, roadways, and in other areas where persons congregate, work, or travel. The plan must also address how residents or occupants of buildings located down the slope from active workings will be notified when ground disturbing activities will take place above them and what actions will be taken to protect them.

Section 45.1-161.248 of the Act states that Section 45.1-161.287 "shall apply with respect to the pits, highwalls, benches, and walls associated with any coal mining activities conducted at surface areas of underground coal mines." In order to comply with this section, any underground coal mine operator that has not submitted and had approved a ground control plan under the February 10, 2005, revision to this section of the law is required to submit a revised ground control plan.

The Division of Mines (DM) and the Division of Mined Land Reclamation (DMLR), with input from an industry advisory group, have developed a generic ground control plan (enclosed) as an example for underground mining operations. Mine operators may choose to pattern their own plan after the generic plan or submit one of their own design. However, any plan submitted must address each requirement detailed in the generic ground control plan, in particular those requirements pertaining to working in "red zones". Red zones, as defined by the generic plan, are work areas that represent a potential hazard to the public. The term "red zones" has been

used for underground mines in regards to working around the continuous mining machine. However, DMME, in conjunction with the surface mine operators, has adopted this term to identify areas where ground disturbing activities could pose a hazard to the public. Since the red zones will be required to be shown on a mine map and are an integral part of the ground control plan, it will also be necessary for mine operators to submit, with the plan, a map of the surface areas of the mine that shows any red zones. Operators should make their own determination of the location of the red zones. Assigned inspectors from each division, as well as designated technical personnel, will evaluate the submitted ground control plans for adequacy. In addition, future mine maps that are submitted in order to meet the requirements of Section 45.1-161.64 of the Act must also show any red zones associated with mining operations, or have attached a copy of the map that shows the red zones. If you have not identified any red zones, please note that in your cover letter. A map is not required with the initial submittal of the ground control plan if you do not have any red zones.

The Department of Mines, Minerals and Energy is requiring all underground mine operations to submit a revised ground control plan to the DM by **March 1, 2006**. Should you have several underground mine operations, and foresee difficulty meeting the above deadline, please contact the DM to prioritize submittal of ground control plans for your operations.

You will not have to submit plans separately to each division. A single submission with a cover letter addressed to the Chief of DM and the Director of DMLR will suffice.

Should you have any questions or problems developing your ground control plan, please contact your assigned mine inspector or call a DM roof control specialist at Big Stone Gap (276-523-8229) or Keen Mountain (276-498-4553). Thank you.

dm

Enclosure

Company Name  
Address  
City, State, Zip

Date

Frank A. Linkous, Chief  
Division of Mines

Butch Lambert, Director  
Division of Mined Land Reclamation  
Post Office Drawer 900  
Big Stone Gap, Virginia 24219

Dear Sirs:

RE: *Ground Control Plan for the Surface Area of an Underground Mine*

In compliance with Section 45.1-161.248 of the Coal Mine Safety Laws of Virginia, the enclosed Ground Control Plan is submitted for the above referenced mine. Your prompt consideration and approval will be appreciated.

Sincerely,

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Company Official

**Ground Control Plan**  
**For Surface Areas of Underground Coal Mines**

**1. General Information:**

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Company Name		Mine Name or Number
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<hr/>	<hr/>	<hr/>
MSHA ID Number	DMLR Permit No.	DM Index Number

**2. Tree Removal**

- a. The highwall will be cleared of all trees, brush, and loose material that create a hazard to workers.
- b. Persons having to work in close proximity to the top of a highwall to remove trees, brush, or loose material will be secured by a harness/belt and rope or similar device or work will be done utilizing equipment designed to do such work.
- c. Trees that need to be removed that have a potential to contact energized power lines will be removed in a manner that does not expose workers to contact with such lines. This may include using cables, ropes or de-energizing the electrical power from the lines. The owner of the power line will be notified prior to work being performed and in the event of any damage to the power line.

**3. Highwalls and Spoil Banks**

- a. The layout of the mine yard will be designed in such a manner to allow for safe operation of all the equipment.
- b. The highwall will be sloped back at least 5 degrees past vertical. Existing highwalls and pre-split highwalls are exempt from this standard.
- c. Loose material will be removed, using appropriate equipment, from the highwall as it is exposed. Effective control measures will be used where the highwall is susceptible to material sloughing. Existing highwalls shall be kept free of loose material that creates hazardous conditions. For new face-ups, blasting shall be designed to provide a stable highwall.
- d. A substantially constructed canopy, of sufficient strength and length, will be located at the surface of each underground mine opening to protect miners from falling material.
- e. Surface structures, supply storage areas, and other installations will be located and maintained to control exposure to hazardous conditions of the highwall.
- f. When equipment must operate at the base of a highwall the operator will, where practical, position the equipment so that the operator's cab is positioned in the safest location.

- g. During construction, spoil banks will be moved in a manner that does not create an overhang that exposes workers to hazards from falling or sliding material. Dozers or other equipment will be used to break down the upper portion of spoil banks in order to prevent overhangs and other hazards.
- h. During construction, spoil banks adjacent to work areas will be constructed on a safe slope and in such a manner to protect persons from falling or sliding material. Where spoil banks become so steep that hazardous conditions exist, action will be taken immediately to correct such hazardous condition.

#### 4. Roadways

- a. Haul roads, to the extent possible, will be constructed a safe distance away from highwalls to minimize exposure to falling or sliding materials.
- b. Spoil banks and highwalls adjacent to all active roads will be maintained in such a manner to protect persons from hazardous conditions.
- c. During construction, roadways that are exposed to upslope dumping or pushing of material will be protected by effective means utilized to ensure the safety of vehicles traveling on the roadway.

#### 5. Mine Map

- a. A map will be maintained at the mine site showing residences, businesses, public buildings, and public or private roads that may be affected by mining activities. All red zone areas of the mine created during construction or existing during operations will be clearly identified on the map by highlighting or no other less effective means. **Red zones are work areas that represent a potential hazard to public safety.**
- b. Temporary notations to include updates of gas wells, gas lines, and other changes potentially affecting the mine will be updated on the map when they become known.

#### 6. Working In or Around Red Zones

- a. Warning signs, flagging, or other no less effective means will be used to mark work areas that are designated red zones. The method used to mark these work areas will be distinctively different from other warnings and markings utilized at the mine site.
- b. Berms, fencing, or other barrier protection will be used to contain material that creates a hazardous condition upslope from red zones. In locations where berms, fencing or other barrier protection cannot be used, spotters will be used to control work so that material is prevented from rolling, slipping, or sliding down slope. No work will be performed upslope in red zones without these precautions in place where the work being performed creates a hazard for dislodged material.
- c. Work activity in red zone areas will be conducted in a safe manner using proper equipment for the work being performed.

- d. Residents or occupants of other buildings affected by red zones will be initially notified by personal contact if they are present, or by written notice conspicuously attached to the residence or building at least three hours and no more than 24 hours prior to beginning such work. This notification is to include the type of work that is planned, the length of time the work is expected to last, and the safety measures that will be used. A record of the notification will be recorded in the on-shift report of the mine or a record book designated for that purpose maintained at the mine site.
- e. When blasting in red zone areas, blasting procedures will be modified such as reducing poundage, reducing the number of shots, reducing the depth and size of drill holes, changing the free face direction, using electronic detonation or implementing other measures to control the potential for damage.
  - i. Such safety measures taken when blasting in red zone areas will be documented in the on-shift record book or other record book designated for that purpose.
  - ii. Residents affected by blasting in red zones will be given notification of the specific blasting schedule at least three hours and no more than 24 hours prior to the initial blast. This notification is to include the planned blasting activities, the safety measures that will be used, blasting signals, and precautions the residents should take. Resident will be notified prior to changes in the schedule and updated at least on a weekly basis.
  - iii. Notification of residents will be documented in the on-shift record book or other record book designated for that purpose and maintained at the mine site.

## **7. Training/Documentation**

- a. The applicable contents of this plan (including map) will be reviewed with all newly employed miners and with all miners annually.
- b. The contents of this plan will be reviewed with all employees immediately prior to starting work in red zones. The foreman will ensure that the employees are aware of the red zones and are familiar with the requirements of this plan.
- c. A record of the training required under this section must be maintained at the mine and open for inspection for a period of one year.

## **8. Management Control**

- a. The foreman directing the work is responsible and accountable for the implementation of this ground control plan.
- b. The foreman will ensure that work assignments and necessary precautions for red zone work is clearly communicated to all affected miners.
- c. The foreman will provide direct monitoring and evaluation to ensure that effective control of work in the red zones is maintained in accordance with the ground control plan.

- d.** The person countersigning the on-shift report of the on-site foreman will ensure that records reflect compliance with any record required by this plan and that any hazardous conditions recorded have been promptly corrected.
- e.** Should a situation arise where the mine management cannot comply with the contents of this plan, the foreman will consult with appropriate company management to seek alternative methods that offer an equal level of safety or greater. The Chief of the Division of Mines must approve any variance from this plan.

The approved plan will also be incorporated into the DMLR coal surface mining permit plan. DM and DMLR will jointly enforce the provisions of the approved plan.